



US006234066B1

(12) **United States Patent**  
**Zittel et al.**

(10) **Patent No.:** **US 6,234,066 B1**  
(45) **Date of Patent:** **May 22, 2001**

(54) **ROTARY BLANCHER FOR PROCESSING  
FOOD PRODUCT**

(75) Inventors: **David R. Zittel**, Columbus; **Steven W. Hughes**, Beaver Dam; **Daniel D. Maupin**, Columbus, all of WI (US)

(73) Assignee: **Lycio Manufacturing Inc.**, Columbus, WI (US)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/727,122**

(22) Filed: **Nov. 30, 2000**

**Related U.S. Application Data**

(62) Division of application No. 09/419,716, filed on Oct. 14, 1999.

(51) Int. Cl.<sup>7</sup> ..... **A23L 3/00**; **A23N 12/00**;  
**A47J 37/12**; **F25D 25/02**

(52) U.S. Cl. .... **99/348**; **99/355**; **99/404**;  
**99/409**; **99/443 C**; **99/470**; **99/517**

(58) Field of Search ..... **99/348**, **352-355**,  
**99/360**, **365**, **403-409**, **450**, **470**, **483**, **487**,  
**516**, **517**, **534**, **536**, **477-479**, **443 R**, **443 C**;  
**366/81**, **91**, **101**, **102**, **144-149**, **234**, **290**,  
**318**, **319**, **322**, **324**; **134/132**, **65**; **62/381**,  
**375**, **374**, **63**, **64**; **100/117**, **145**; **426/509-511**,  
**520**, **523**

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

1,231,002 \* 6/1917 Steere ..... 134/132  
1,290,396 \* 1/1919 Steere ..... 134/132  
1,806,957 \* 5/1931 Stocking ..... 134/132

2,166,197 \* 7/1939 Schaub ..... 366/322  
2,314,871 \* 3/1943 DeBack ..... 134/65  
2,909,872 \* 10/1959 Kearney et al. .... 134/132  
3,135,668 \* 6/1964 Wesson ..... 134/132  
3,484,360 \* 12/1969 Sandrock ..... 366/234  
3,760,714 \* 9/1973 Lortz ..... 99/404  
4,875,344 \* 10/1989 Zittel ..... 62/381  
5,456,091 \* 10/1995 Zittel ..... 62/375  
5,632,195 \* 5/1997 Zittel ..... 99/348  
5,752,431 \* 5/1998 Zittel ..... 99/348

\* cited by examiner

*Primary Examiner*—Timothy F. Simone

(74) *Attorney, Agent, or Firm*—Nilles & Nilles SC

(57) **ABSTRACT**

A method and rotary blancher for processing food product using a heat transfer medium and directed flows of a fluid that can comprise a liquid, a gas, a vapor or a combination thereof. The directed flows can be discharged from orifices or banks of orifices that are distributed around the food products in the blancher. The flows are discharged at a high flow rate, a high pressure, or a combination of both. Where a liquid is discharged, it preferably is discharged at a flow rate of at least 20 gpm and at least 30 psi. Where a gas is discharged, it is discharged at a flow rate of at least 60 CFM at a pressure of at least 2 psi or at a flow rate of at least 10 CFM at a pressure of at least 80 psi. If desired, discharged fluid can be recirculated to save energy. To help increase agitation and help break up clumps of food products in the blancher, direct-contact mechanical agitation devices, such as baffles, can be used. Such a blancher and method can be used to process food product by blanching, cooking and pasteurizing, is suited for processing relatively heavy food products having a density of at least 55 lbs/ft<sup>3</sup> using discharged liquid and gas, and is suited for processing food products having a lesser density using only discharged gas.

**36 Claims, 9 Drawing Sheets**

